

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-4, 9-15, 20-23 and 26-38 are in this case. Claims 1-4, 9-15, 20-23 and 26-38 have been rejected under § 103(a). No amendments are made at this time.

Interview Summary

Reference is made to a telephone interview conducted on July 22, 2008, between Examiner Leigh McKane for the PTO and Dr. Mark Friedman with his associate, Mr. Daniel Michaels, for the Applicant. The interview addressed the § 103(a) rejections of independent claims 1 and 20 over "Bithell" and "Chollet". No agreement was reached as to the allowability of any claim.

The Applicant first pointed out that the combination of Bithell and Chollet fails to teach all of the explicit limitations of the independent claims. For example, the Applicant pointed out that Bithell performs pressure cycles under conditions which support continuous plasma discharge (whether or not the discharge happens to be switched off for part of the cycle to avoid overheating), as illustrated in column 5, lines 20-22. Chollet, on the other hand, adds ozone and water vapor under non-plasma conditions, and subsequently introduces plasma generated in a plasma generator exterior to the treatment chamber. Thus, neither of the references discloses "*adding water vapor and ozone to the chamber ... so as to increase the pressure of the atmosphere within the chamber until ... said electrical discharge is broken*".

The Examiner acknowledged that neither reference discloses quenching of a plasma by addition of water vapor and ozone, but stated that she was not immediately

convinced that the language "said electrical discharge is broken" was sufficient to exclude the possibility of switching off the electric discharge power supply.

The Applicant further pointed out that neither reference discloses introduction of ozone and water vapor directly into a chamber during plasma discharge. Bithell does not relate to ozone and water vapor at all, while Chollet relates to introducing them as a decontamination agent followed by a subsequent plasma treatment step with gaseous plasma generated externally to the chamber.

The Examiner replied that she thought Chollet teaches that ozone and water vapor are highly effective for forming radicals, and would therefore provide a motivation to modify Bithell to use ozone and water vapor as a raw material. Further analysis of the exact teachings of Chollet during the telephone interview was curtailed due to the limited understanding by both the Examiner and the Applicant of the French language text of Chollet.

After further consideration, the Applicant believes that the Examiner's assertion as to the teachings of Chollet is actually erroneous, as will be discussed below.

The Applicant thanks the Examiner for her helpfulness and her generous allotment of time for this interview.

§ 103(a) Rejections

The Examiner has rejected claims 1-4, 9-15, 20-23 and 26-38 under § 103(a) as being unpatentable over Bithell (US 4,348,357) in view of Chollet et al. (WO 9835708). The Examiner's rejections are respectfully traversed.

As detailed above in the context of the telephone interview summary, the Applicant believes that neither Bithell nor Chollet teaches a method of sterilizing an item including adding water vapor and ozone to a chamber during plasma discharge

so as to generate OH radicals and to break the plasma discharge. Regarding the Examiner's assertion that the teachings of Chollet would provide motivation to modify Bithell to use water vapor and ozone as the raw materials for the plasma, this assertion was based on an understanding that Chollet teaches ozone and water vapor as a highly effective combination for dissociating to form radicals. The Applicant respectfully submits that the Examiner has failed to demonstrate any such teaching in the Chollet document, and that the Examiner's understanding is erroneous.

Specifically, the English abstract from the front page of the Chollet publication only refers to use of ozone and water vapor for the "injection" and "impregnation" steps, both of which occur during time interval T1-T3 during which there is no plasma present. The DERWENT abstract similarly only mentions ozone and water vapor in the context of the non-plasma chemical decontamination agent, and further specifies that "the chemical agent is withdrawn" prior to injection of the gaseous plasma.

The Applicant has further made efforts to understand the foreign language text of Chollet in order to further clarify the teachings of Chollet with regard to the plasma step of the process. Specifically, the Applicant identified the following passage from Chollet (from page 10, line 27 through page 11, line 4) as apparently referring to the generation of the gaseous plasma:

Différents types de gaz plasmagènes peuvent tre utilisés selon les applications souhaitées. Par exemple, on pourra choisir d'utiliser tout simplement de l'air, de l'oxygène, de l'hydrogène, de l'argon ou encore de l'hélium. De manière connue en soi, le fait d'exciter un tel gaz par des charges électriques ou par des ondes électromagnétiques a un effet d'ionisation presque totale du gaz, de sorte que le plasma, bien qu'étant globalement chimiquement neutre, comprend pratiquement uniquement des espèces électriquement chargées, en particulier des ions positifs et des électrons. Par extension, on appellera plasma un gaz fortement ionisé. On sait qu'un plasma a un effet de stérilisation et tend à détruire les micro-organismes qui se trouvent à son contact. Par ailleurs, le plasma étant injecté ou produit dans la chambre de

traitement après l'étape de traitement par le mélange gazeux d'ozone et de vapeur d'eau. ce plasma tend également à détruire les éventuels résidus d'ozone sur le ou les échantillons à stériliser.

The Applicant has obtained a machine translation of this text (with minor grammatical corrections by hand) which reads as follows:

Various types of plasma-producing gases can be used according to desired applications. For example, one may choose simply to use air, or oxygen, hydrogen, argon or helium. In a known way in oneself, the fact of exciting such a gas by electric charges or electromagnetic waves has an effect of almost total ionization of gas, so that plasma, although being overall chemically neutral, includes almost exclusively species electrically charged, in particular of the positive ions and electrons. By extension, one will call plasma a strongly ionized gas. It is known that a plasma has an effect of sterilization and tends to destroy the micro-organisms which are with its contact. In addition, plasma being injected or being produced in the curing chamber after the stage of treatment by the gas mixture of ozone and steam. this plasma also tends to destroy the possible ozone residues on the samples to be sterilized.


From this excerpt, it appears clear that:

- the list of raw materials envisaged by Chollet for formation of the gaseous plasma includes air, oxygen, hydrogen, argon and helium, but does not include ozone and water vapor; and
- to the contrary, the plasma is disclosed as helping to destroy any residue of the ozone used in the previous non-plasma step, thus further emphasizing that the plasma itself is not based on ozone.

In view of the above, the Applicant respectfully submits that the Examiner's rejections are based on an erroneous understanding of the teachings of Chollet, and that neither of the cited references teaches or in any way suggests introduction of ozone and water vapor into a chamber during plasma discharge, or any teaching which would render such a process obvious. Careful reconsideration of the Examiner's rejections under § 103(a) is respectfully requested.

In view of the above arguments, it is respectfully submitted that independent claims 1 and 20, and hence also dependent claims 2-4, 9-15 and 21-23 and 26-38 which depend therefrom, are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,



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